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SMALLPOX.

Outbreaks of the virulent type of smallpox have recently occurred in California, Texas, Oklahoma, and Pennsylvania. In California 11 cases, with 5 deaths, were reported at Berkeley from December 17 to February 8, at which time 6 cases were still under treatment. These cases were evidently of a more virulent strain than that prevailing in other communities in the vicinity, for in San Francisco there had been 74 cases, with but 1 death, since July 1, 1912, and in Oakland since December 1, 31 cases without a reported death and with 12 cases remaining under treatment. In Imperial County, Cal., near the Mexican border, there were 18 cases of the disease, with 4 deaths, during the month of January.

In Texas there has been virulent smallpox in Hunt County. In October, 1912, there was a small outbreak of 12 cases, with 3 deaths. In November there was another small outbreak, with 9 cases and 1 death. Beginning with the early part of December there was an outbreak in which there were in all 127 cases, with 34 deaths. On February 5 the disease was apparently under control, with but 3 cases remaining under treatment.

In Oklahoma there has been a considerable outbreak of virulent smallpox in Choctaw and McCurtain Counties. To February 3 there had been in Choctaw County 82 reported cases, with 21 deaths. Fifty-one of these cases and 17 of the deaths occurred in the town of Hugo. In McCurtain County there had been 31 reported cases, with 10 deaths. There were small numbers of cases in adjoining counties.

In Pennsylvania a case of smallpox occurred in the Allegheny Home at Woodville January 23. To February 11 there had been a total of 15 cases, with 3 deaths in the institution.

The mild type of smallpox is present to some extent in practically all sections of the country. At Pensacola, Fla., 30 new cases were reported during the week ended February 8. This makes a total for the outbreak at that place of 193 cases. During the week ended February 1 the cities reporting the largest number of cases were as

follows: Chicago, 10; Detroit, 10; Knoxville, 6; Memphis, 8; Milwaukee, 8; Zanesville, Ohio, 7. For the week ended February 8: Baltimore, 9; Milwaukee, 13.

CONTAMINATION OF FOOD SUPPLIES.

THE VALUE OF PROTOZOA AS AN AID IN DETERMINING FECAL CONTAMINATION OF THE FOOD SUPPLY.

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In an effort to find a method to determine the existence or probable existence of fecal contamination of food, the idea presented itself that a practical test of relatively simple application seemed to be found in the presence of certain protozoa in the stools of persons of any given locality. Three protozoa in particular come into consideration, namely, *Entameba coli*, *Lamblia duodenalis*, and *Trichomonas intestinalis*.

All three of these organisms live in the intestine of man, and all three possess a spore stage that can be recognized by microscopic examination of the stools. As all three are, according to our present knowledge, obligatory parasites, their presence in a given person is presumptive evidence that the person in question received his infection from a preexisting infection in some other person. As these parasites or their spores are discharged from the body in the fecal material, the conclusion seems justified that the dejecta form the source of infection.

That flies breed in and feed upon human feces is a fact so well established that it needs no further argument. That the flies thus breeding and feeding visit houses and carry fecal contamination to the food is a conclusion based in part on circumstantial evidence and supported by observation and experiment. That these flies could easily carry the minute spores of the protozoa under discussion can hardly be questioned, although the possibility does not seem entirely excluded that the spores might also be blown around as dust from dried night soil and thus reach the food through aerial contamination.

Given now the facts (1) that we are dealing with obligatory parasites, (2) that the presence of these parasites in a person presupposes a preexisting intestinal infection in some other individual, (3) that they are discharged from the bowels in the feces, (4) that their spores are small enough to be carried by flies (possibly also as dust in the air), (5) that flies breed in and feed upon fecal material and are known to carry contamination to food, the conclusion seems justified that according to our present knowledge the presence of *Entameba coli*, of *Lamblia duodenalis*, or of *Trichomonas intestinalis* in a person may